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longer constituted of persons following the employment for which they were founded.

Dr. FLETCHER said he inferred from Mr. Blodgett's remarks that cohabitation does not follow betrothal, and added that it is considered a disgrace if a child is not betrothed when she arrives at menstruation.

Prof. MASON referred to similar kinds of legislation in this country, prohibiting marriage, especially the laws, in many states, against miscegenation. He also said that caste originated at a time when the conquering Aryans were in a great minority, and to preserve the purity of their stock they made stringent laws against intermarriages. The laws of Menu prohibit intermarriages.

The PRESIDENT informed the members that the 2d volume of the Transactions was now ready for distribution, and copies could be obtained by calling upon the Secretary, at the May Building, 7th and E streets N. W.

SEVENTY-FIFTH REGULAR MEETING, December 19, 1883.

President Col. GARRICK MALLERY in the Chair.

The Council reported, through its Secretary, the election of Mr. Perry B. Pierce, of the U. S. Patent Office, as an active member.

The Secretary of the Council read a letter from Mr. Wilson, U. S. Consul at Nantes, France, relating to his antiquarian researches in that country.

Prof. CYRUS THOMAS then read a paper entitled "THE HOUSES OF THE MOUND-BUILDERS,"* illustrated by diagrams and specimens of clay plastering.

ABSTRACT.

Prof. THOMAS commenced by saying that while the ruins in Central America furnished abundant materials for judging the architectural skill of the ancient people of that region, no such opportunity was offered in regard to the mound-builders, all their buildings having crumbled to dust. Still we are not left wholly in the dark in regard to them. He then went on to show that they must have

* Published in Magazine of Am. History, 1884, 110-116.

been of perishable materials, and that the little circular depressions from fifteen to fifty feet in diameter surrounded by earthen rings are the sites of ancient dwellings. From the fact that the hearth is found in the center he inferred that they were much like the conical wigwams of the modern Indians. Remains of this kind are common in middle and west Tennessee and in southeastern Missouri.

Farther south, during the explorations carried on under the Bureau of Ethnology, there have been found in many of the mounds layers of burnt clay broken up into fragments. From numerous facts ascertained in regard to these remains, which cannot be given in this abstract, and the descriptions given by early explorers of the houses of the Indians of this section, he argued that these were the remains of the houses of the mound-builders.

DISCUSSION.

Mr. JAS. H. BLODGETT said: I hope Prof. Thomas will heed the suggestion of Mr. Carr, whose recent work was referred to, and not suppress part of his own work because Mr. Carr has anticipated him in his statements. The public has become so thoroughly trained into the idea of a mysterious lost race of mound-builders that it will be necessary for every one who knows of facts indicating the contrary to state them on all proper occasions. Lately seeing a reference to the mysterious lost mound-builders in the manuscript of a prominent writer, I suggested to him that it might expose him to criticism, and referred him to one or two eminent names that endorsed the view that our red Indians were competent to do like work. My suggestion was the first information received in this author's office that any such view was seriously held and I was referred to an article in a standard Cyclopeædia some years old to inform myself as to the true view. I trust Dr. Thomas will add his testimony in its due place.

Prof. MASON said he had always wished to see this subject discussed by gentlemen who had had as much experience in the matter as Major Powell and Prof. Thomas. It seems that doubts are thickening more rapidly than the proofs are forthcoming. In his own mind he had no doubts upon the subject, but took this antagonistic stand for the purpose of drawing out such facts to enlighten others who were adherents of the belief that the mound-builders

were a distinct race, and one of greater antiquity than is now known to be the case.

Major POWELL said the paper by Prof. Thomas is a valuable contribution to our knowledge of the North American Indians. It opportunely falls in with the present lines of research in two distinct ways: First, as identifying the mound-builders with various tribes found on the discovery of this country; second, as an addition to our knowledge of the dwellings of the ancient inhabitants of this country.

At our last meeting we had an interesting paper from Mr. Holmes, who, from his studies, concluded that the mound-builders were no other than the Indians inhabiting the country. Last year we had a paper from Mr. Henshaw arriving at the same conclusion from the facts discovered in another field of research. And now Prof. Thomas finds that some of the earth-works of this country are domiciliary mounds, as suggested long ago by Lewis H. Morgan, who was the great pioneer of anthropologic research in America; and, further, that the houses found in ruins on the mounds are such as were built by the Indians, as recorded in the early history of the settlement of this country.

Thus it is that from every hand we reach the conclusion that the Indians of North America, discovered at the advent of the white man to this continent, were mound-builders, and gradually the exaggerated accounts of the state of arts represented by the relics discovered in these mounds are being dissipated, and the ancient civilization which has hitherto been supposed to be represented by the mounds is disappearing in the light of modern investigation.

But Professor Thomas' paper is valuable from the fact that it gives us a clearer insight into the character of the habitations of these people. The Indians of North America made their dwellings in various forms and of various materials. The rudest dwellings found in the country are those made by some of the Indians of Utah and Nevada of the great Shoshonian family. These are simple shelters made of banks of brush and bark, especially the bark of the cedar, piled up so as to include a circular space, but open toward a fire. Boughs near the summit of the bark project over a portion of this space, and bark and boughs are piled indiscriminately on all. Such a shelter is good protection against wind, and, to some degree, against snow and rain. But these same people occasionally build larger habitations with small posts and cross-

pieces, upon which wattles of willow withes are made, and the whole is covered with willows. I have known such a communal house to be built large enough to accommodate from seventy-five to one hundred and twenty-five persons—all the members of a little tribe—while at other times the same tribes have been found occupying the rude dwellings above mentioned. Nor have I been able to discover their reasons for changing from one to the other. This has been observed: that the communal houses are but rarely used.

Many of the Indians of California build houses made of wind-riven slabs and poles inclined against a central ridge-pole and banked with earth, sometimes but part way up the sides of the inclined pole, sometimes quite over the top. At one end of such a dwelling an aperture is left for the escape of smoke. The Navajos often build similar lodges, except that they are conical in shape and have a peculiar entrance—a kind of booth like a *porte cochère*. In the eastern portion of the United States, as among the Iroquois, large oblong house were made of poles and slabs. Many of these houses were communal. Around Pyramid Lake and in many other portions of the country their dwellings were made of reeds, called in the West *tules*. Sometimes these houses were made somewhat symmetrically of poles, into which the tules were woven as a kind of wattle. At other times they made fascines of the reeds and used them in the construction of their houses, and I have had described to me houses made of fascines and wattled tules on the shores of Pyramid Lake and other lakes of the West, and oftentimes built out over the water. In a large portion of the United States the climate is arid, and naked sandstone rocks appear in great abundance, while forests are very rare. In all of these regions the Indians built of stone. Sometimes they walled up the front of a cave, or built a house under an overhanging cliff, using the wall of rock behind as a part of the dwelling. Sometimes, where rocks were friable, they excavated chambers in the sides of the cliffs. The cliff dwellings and cavate dwellings are found in great abundance in New Mexico, Arizona, and some portions of Utah. Other dwellings have been discovered in certain hills of Arizona that are natural truncated cones. In such a case the summit of the hill is a volcanic breccia, exceedingly friable, through which shafts were sunk into a more friable breccia below. In this more friable rock extensive chambers were excavated, and the entrance to these chambers was through a shaft from above by means of a ladder. With the

extensive pueblos of that region you are all quite familiar. To a very large extent it is observed that the arrangement of dwellings in a village is significant. In very many cases they are arranged by clans and phratries. When such an arrangement does not exist there is usually some other device taking its place. For example, among Muskokis, or Creeks, near the centre of the village, there is a square laid out in a very systematic manner with seats, or rather spaces for sitting, on the ground relegated in a particular manner to phratries and clans, so that the tribe was arranged, in the council held from time to time in the square, in a systematic order. Usually over these sitting places booths were erected, and the posts that upheld the booths marked in a more specific way the seats of the officers of the village. In connection with these council squares a very interesting council lodge has been discovered. The booths of the square did not furnish ample protection at all seasons of the year, and in order to meet their wants on such occasions a huge conical lodge was constructed of the tall trees of that country. Slender trees 50 or 60 feet in height were cut down, trimmed, and inclined against a central, standing tree. Thus a huge conical lodge, 50 feet or more in height, was constructed; under which the whole village could take shelter. Under this they gathered in inclement weather to conduct their dances. And just here it should be remarked that the Creek Indians have yet a tradition of a time when they built their houses with wattled walls, the interiors of which were plastered—exactly such houses as have been described by Prof. Thomas.

The subject of house-building among the North American Indians is one of very great interest, as the various tribes exhibited much skill in utilizing the materials at hand, whatever they might be—bark, poles, slabs, tules, skins of animals, stone, etc.

Prof. MASON further stated that he had handled thousands of Indian weapons, utensils, &c., and found that many objects occurred in the mounds for which no particular use could be now assigned.

Major POWELL replied that it was very doubtful, at this time, if anything existed that could not be explained through the survival of similar articles now in use among some of the more isolated tribes of Indians.

Prof. SCUDDER referred to and reviewed some of Prof. Putnam's investigations and discoveries at Madisonville, and referred specially

to the exhumation of figurines, pearls, meteoric iron, and rude plating of hammered silver.

Prof. THOMAS, in reply to Prof. Scudder's statement of what had recently been found by Prof. Putnam in certain Ohio mounds, stated that all of the types mentioned, except one, had been obtained by the assistants of the Bureau of Ethnology.

Major POWELL said: The discussion this evening has brought out many interesting facts relating to the early inhabitants of this country, especially to the dwellings which they occupied and to the antiquity of the ruins which have been discovered.

In 1856 or '7 I was making exploration of mounds on the shore of Peoria Lake, in Illinois, and I discovered in a mound a copper plate—a thin sheet of copper, cut in the form to represent an eagle. At the time I supposed it gave evidence of the superior civilization of the mound-builders. Some months after, in more carefully examining this thin copper plate, I discovered that it had been rolled and cut by machinery, and this led me to believe that it was not the manufacture of Indians, but that it was probably manufactured by white men. If the supposition were true it is manifest that the mound had been erected subsequent to the association of these Indians with white people. This was the first suggestion to my mind that the age of the mounds had been misinterpreted, and that the general conclusion that the mound-builders were not tribes found in this country on its discovery was erroneous. Since that time one line of evidence after another has led to the same conclusion. Some years ago I published this conclusion in general terms, and every year it is strengthened, and it may be fairly said at the present time that it rests on a sound inductive basis.

But this conclusion does not overthrow the belief that many of the mounds are of great antiquity. Domiciliary mounds, burial mounds, and mounds for many other purposes are discovered everywhere throughout North America in vast numbers, and doubtless the inception of mound-building dates far back in remote antiquity. The numbers of the mounds themselves testify to this conclusion, and the conditions under which many of them are found lead to the same opinion. To account for the great numbers of the mounds it is not necessary, but is in fact illogical, to assume a dense population. Length of time will give the same result; and I think it has been clearly shown that the number of Indians inhabiting the country at the time of its discovery by Europeans has been by many writers

enormously exaggerated. It is probable that at the present time the number of Indians in the country does not equal that of the time of the landing of Columbus. On the other hand, the disparity between the numbers of the two periods is not great.

But here I must be permitted to remark that oftentimes the evidence adduced to prove the antiquity of the ancient works discovered throughout the country is unsound. There is abundant evidence of antiquity—good geologic evidence. Stone implements are found in geologic formations to such an extent as to leave no doubt that this continent was inhabited by man in early quaternary time; but sound evidence must be clearly discriminated from much of the evidence which is adduced. Travelers and scholars sometimes talk very loosely on this subject. Let me illustrate this.

In the southwestern portion of the United States we discover in vast numbers the ruins of ancient stone villages. Often these ruins are found at sites where water is not now accessible, and hence it has been averred again and again that all this arid portion of the United States was at some early period densely inhabited, and that the country has been depopulated by increasing aridity. And this secular change of climate has been adduced as evidence of the great antiquity of these works.

In 1870 I discovered ruins on the Kanab Creek in Utah and some of its tributaries elsewhere in Utah and Arizona, away from the neighborhood of water, and, like many other travelers, it at first seemed to me that I had discovered evidence of change of climate. But my work in that region was that of the geologist rather than of the anthropologist, and I early discovered that such evidence is valueless. In that arid country years—perhaps tens or scores of years—will pass without great rains. During such times the larger valleys are filled with the materials brought down by the wash of rains and minor streams, and such accumulation in the valleys of this arid region is very often found. But there come at greater or less intervals storms of such magnitude, precipitating waters in such volume that the valleys themselves are cleared of the accumulated sands. When this is done streams flow through them for miles or scores of miles where they did not run before, and the few springs along the water courses are unmasked and yield a constant supply. And I have in my mind at the present time a ruin which I supposed to be far away from water, and which was far away from known water ten years ago, but at the foot of which to-day a beau-

tiful stream is running, this valley having been cleared of its débris not more than eighteen months ago. Abundant instances of this kind can be brought up.

Savage people abandon their homes for reasons not fully or easily appreciated by civilized men. Some disease carries off a great man or a number of persons in a tribe, and panic seizes the people and they leave their homes, perhaps burn them, under the belief that evil beings or evil influences have taken possession thereof. And this occurs very often. I have myself more than once witnessed the effect on a tribe of an epidemic or the mysterious death of a noted personage. For this reason the sites of Indian villages, even though dwellings may be erected of stone, are not very permanent; they are constantly changing. In the southwestern portion of the United States there are other causes for change, namely, those mentioned above—physical causes. A tribe settling on a flowing stream at one time may have that stream buried by drifting sands and the springs all masked and be compelled thereby to change their habitation. And such changes doubtless were frequent.

Again, we know that a people living in a central village build small summer residences scattered about the country by the sites of springs, where they cultivate their little crops of grain and other vegetables; so that a large group of such dwellings may be ofund gathered about some central pueblo—not giving evidence of a dense population, but only of the habits and customs of a small body of people. In such manner it may be shown that the extensive population of the southwestern portion of the country, based upon the evidence of the ruins so abundantly found, does not hold. A few people moving here and there from spring to spring and from stream to stream as pestilence and superstition and physical changes demanded would in many recurring centuries leave behind all the ruins now discovered. The antiquity of man widely scattered throughout this continent is firmly established on good geologic evidence, and it is not necessary to resort to evidence of doubtful character.